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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,451	09/24/2003	Liang-Sheng Liao	86885RLO	4579

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EXAMINER

GARRETT, DAWN L

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 08/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/669,451	LIAO ET AL.	
	Examiner	Art Unit	
	Dawn Garrett	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9-24-2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 1 recites a non-hole-blocking layer having “substantially the same ionization potential and the same electron affinity as those of one of the host materials”. The term “substantially” is considered to be indefinite, because it is not clear how close the ionization potential and electron affinity of the non-hole-blocking layer must be to the host material. It is not seen where the specification describes the range of variation with regard to “substantially the same” set forth in claim 1. Clarification and/or correction are required.
4. In claim 3, it is not clear if “the emission wavelength” is for the light-emitting layer producing blue light or if the emission wavelength refers to the color of light produced by the device as a whole. Clarification is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

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subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 3, 5, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by D'Andrade et al. (US 2002/0197511). D'Andrade et al. teach multi-color OLEDs comprising multiple light emitting dopants (see abstract). Device 3 discussed in par. 85 discloses a device with an ITO anode, a NPD hole transporting layer, a light emitting layer comprising CBP doped with blue emitting FIrpic per the instant light-emitting layer disposed over the hole-transporting layer for producing blue light, a light emitting layer comprising CBP doped with red phosphor Btp₂Ir(acac)) per the instant "non-hole-blocking layer", a CBP layer doped with yellow phosphor (which can also be considered a "non-hole-blocking layer", an electron transporting layer and a cathode (see par. 85). Since the blue light emitting layer and the red doped light emitting layer (non-hole-blocking layer) comprise the same host, CBP, they are deemed to have "substantially the same ionization potential and same electron affinity". The light emitting layer producing blue light is deemed to have an emission wavelength shorter than 490 nm, since blue light is this wavelength or shorter per instant claim 3. The thickness of the blue light emitting layer of device 3 is 20 nm per instant claim 5.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1, 5, 6, and 7 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3, and 18-21 of copending Application No. 10/713,523. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations of the instant “non-hole-blocking layer” encompass the definition of the “stability enhancing layer” of application 10/715,523. For instance, claim 3 of the co-pending application requires that the ionization potential of the stability enhancing layer be the same or less than the host material of the light emitting layer. Furthermore, the layer thickness ranges recited in the instant application include and/or overlap with the ranges in application 10/715,523.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

9. Claims 1, 6, 7, and 11-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, and 5-7 of copending Application No. 10/431,303. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations of the instant “non-hole-blocking layer” encompass the definition of the “emission protecting layer” of application 10/431,303. For instance, claim 2 of the co-pending application states that the ionization potential of the emission protecting layer may be the same as the host material of the light emitting layer. Furthermore, the layer thickness ranges recited in the instant application include

and/or overlap with the ranges in application 10/431,303. Materials recited in claim 7 of the co-pending application are the same as materials recited for the instant “non-hole-blocking layer”.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Allowable Subject Matter

10. Claims 2, 4, 6-9, and 11-14 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, and double patenting rejection set forth in this Office action. The closest prior art is considered to be Nii et al., WO 2002/079343, which teaches a luminescent element comprising a light emitting layer comprising at least a host material and an organic membrane layer provided between the light emitting layer and the cathode (see abstract). Nii et al. teaches that the difference in ionization potential between the organic membrane (similar to applicant’s “non-hole-blocking-layer”) and the host material of the light emitting layer is as small as 0.01eV (see par. 98); however, Nii et al. fails to teach the light emitting layer produces blue light as required by the instant claims. The Nii et al. device is red-emitting

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Specifically, US 2003/0143427 is cited for teaching the electron affinity of CBP is 2.9 eV at paragraph 179.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is 571-272-1523. The

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examiner can normally be reached Monday through Friday during normal business hours. Please allow the examiner twenty-four hours to return your call.

If reasonable attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye, can be reached at 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DAWN GARRETT
EXAMINER
ART UNIT 1774

D.G.
August 4, 2004